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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/701,809 | 02/22/2001 | Anthony Tung Shuen Ho | A33766PCTUSA | 8946 |

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| EXAMINER |
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PATEL, SHEFALI D

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| ART UNIT | PAPER NUMBER |
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2621

DATE MAILED: 01/20/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/701,809

Applicant(s)

HO ET AL.

Examiner

Shefali D Patel

Art Unit

2621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 February 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) _____ is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 65-100 is/are allowed.
- 6) ☒ Claim(s) 101-103, 117-121, 123, 126-128 is/are rejected.
- 7) ☒ Claim(s) 104-116, 122, 124 and 125 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 February 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 7.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

Art Unit: 2621

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 126 and 127 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

NOTE: Claims 126 and 127 are rejected because of the improper hybrid claim language. An application containing a hybrid claim wherein, for instance, a product is defined merely in terms of the process for producing it. See MPEP § 705.01(e), situation (A). Where claims are directed to the same character of invention but differ in scope only, prosecution by Patentability Report is never proper. A single claim which claims both an apparatus and the method steps of using the apparatus is indefinite under 112/2nd. In Ex parte Lvell, 17 USPQ2d 1548 (Bd. PA&I, 1990), a claim directed to an automatic transmission workstand and the method steps of using it was held to be ambiguous and properly rejected under 112/2d.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this

Art Unit: 2621

subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 101-103, 117-119, and 128 are rejected under 35 U.S.C. 102(e) as being anticipated by Cooklev (USPN 6,359,998).

With regards to **claim 128** Cooklev discloses a digital recording stored on any digital recording medium (See, col. 7 lines 13-47; See, Figure 1 and respective portion in the specification; Figure 3 element 76), the recording comprising a set of digital image, audio, or video data labeled with a watermark (digital image is the data 50 and 74 and the watermark being the element 54 and 90 as seen in figure 3) comprising a set of digital watermark image data or a set of digital watermark audio data, the set of labeled digital data being created by encoding a set of unlabeled digital data with the set of digital watermark data (set of labeled digital data 54 and 66 is being created by embedding watermark 54 to data 50, See, figure 3).

PLEASE NOTE: If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) (citations omitted) (Claim was directed to a novolac color developer.

THE USE OF 35 U.S.C. 102 /103 REJECTIONS FOR PRODUCT-BY-PROCESS CLAIMS HAS BEEN APPROVED BY THE COURTS

“[T]he lack of physical description in a product-by-process claim makes determination of the patentability of the claim more difficult, since in spite of the fact that the claim may recite only process limitations, it is the patentability of the product claimed and not of the recited process steps which must be established. We are therefore of the opinion that when the prior art discloses a product which reasonably appears to be either identical with or only slightly different

Art Unit: 2621

than a product claimed in a product-by-process claim, a rejection based alternatively on either section 102 or section 103 of the statute is eminently fair and acceptable. As a practical matter, the Patent Office is not equipped to manufacture products by the myriad of processes put before it and then obtain prior art products and make physical comparisons therewith.” In re Brown, 459 F.2d 531, 535, 173 USPQ 685, 688 (CCPA 1972).

With regards to **claim 101** Cooklev discloses a method for extracting digital watermarking image data or digital watermarking audio data from a digital image, audio, or video data sample (watermark data is being retrieved by applying an inverse transformation at col. 12 lines 1-5, Figures 3-5), said method including the steps of: a) inputting a set of labeled digital data and unique key data containing information of locations of watermark data imposed as a label on the labeled digital data (as seen in figure 3, the digital data is 50 and the key is 54, these both are combined and placed in storage 76. The key is disclosed at col. 11 lines 62-67 (i.e., “watermark 54 may be implemented as a sequence of random numbers or may be implemented as a pre-determined sequence as an ASCII text string, or a combination such as an ASCII name of a business entity followed by a sequential identifier such as a particular serial number or user identification number.” The digital data at col. 10 lines 66 to col. 11 lines 1-2.); b) mapping the set of labeled digital data into a format suitable for orthogonal transformation (the digital data is formatted by partitioning of the blocks into format suitable for transformation at col. 11 lines 6-20, col. 12 lines 57 to col. 13 lines 1-7; and also seen in Figure 9 at element 102); c) performing an orthogonal transformation on the formatted labeled data to produce a set of labeled data transform coefficients (col. 11 lines 29-39); d) using the unique key to extract

Art Unit: 2621

transform coefficients of orthogonally transformed watermark data from the location in the set of labeled data transform coefficients specified in the key (using the key 54 which is also stored in the storage as key 90, the transform coefficients are being extracted (i.e., retrieved) as seen in steps 86-96 in Figure 5 and also at col. 13 lines 14-42); e) using an inverse orthogonal transformation on the transformed watermark data to retrieve the embedded watermark data (inverse orthogonal transformation at step 64, col. 12 lines 5-15).

With regard to **claim 102** Cooklev discloses the step of mapping the set of labeled data into a two-dimensional matrix at col. 18 lines 36-46.

With regard to **claim 103** Cooklev discloses the step of dividing the two-dimensional matrix of labeled data into smaller sub-blocks (steps 78 and 80, Fig. 5 and respective portion in the specification) and the step of performing the orthogonal transformation on the labeled data involves performing the orthogonal transform on each sub-block of the labeled data, such that the labeled data transform coefficients are organized in sub-blocks (steps 82 and 84, Figure 5 and respective portion in the specification).

With regard to **claim 117** Cooklev discloses step of displaying the watermark data samples for immediate examination or authentication at col. 7 lines 8-10 as seen in Figure 1 element 24.

With regard to **claim 118** Cooklev discloses step of storing the watermark data samples for future examination or authentication at col. 7 lines 9-10, 24-35 as seen in Figure 1 elements 20 and 22 and storage 76 in Fig. 3.

With regard to **claim 119** it is inherent from Cooklev's invention that the image/video data is obtained from a sample stream representing a digitized grayscale or color image.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 119-121 and 123 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cooklev in view of Rhoads (USPN 6,427,020).

With regard to **claim 119** Cooklev discloses a digital image data as mentioned above. Cooklev does not expressly disclose where the digital data is obtained from a sample stream representing a digitized grayscale or color image. However, Rhoads discloses the digital data is being obtained from a sample stream representing a digitized grayscale or color image (See, col. 3 lines 67 to col. 4 lines 1-3). Cooklev and Rhoads are combinable because they are from the same field of endeavor, i.e., digital watermarking. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Rhoads with Cooklev. The motivation for doing so is that Cooklev's invention is broad and does not necessarily disclose the type of the image data. Rhoads discloses that the image could be in any shape and form at col. 3 lines 47-53 and further discloses and suggests having a color image at col. 3 lines 59-67. Therefore, it would have been obvious to combine Rhoads with Cooklev to obtain the invention as specified in claim 119. Please also note that it would have been obvious matter of design choice to modify Cooklev's invention by having a color or grayscale image,

Art Unit: 2621

since applicant has not disclosed that having either grayscale or color image solves any stated problem or is for any particular purpose.

With regard to **claim 120** Rhoads discloses obtaining the color or the grayscale image from a digital still camera or a digital image scanner at col. 6 lines 44-57.

With regard to **claim 121** Rhoads discloses the digital data being obtained from a sample stream representing digitized video at cols. 9 and 10 under Appendix A lines 25-27.

With regard to **claim 123** Rhoads discloses the digital data is being obtained from a sample stream representing one or more channels of digitized sound or music at cols. 9 and 10 under Appendix A lines 28-30.

Allowable Subject Matter

7. Claims 65-100 are allowed.

The following is an examiner's statement of reasons for allowance: The instant invention defines a method for applying digital watermarking image data or digital watermarking audio data to an unlabeled digital image, audio, or video data sample. The claimed invention distinguishes over the prior art by the manner in which the method for applying watermark is claims in steps a-h in claim 65. The claimed combination allows for improving a method of copyright protection, authentication and integrity of digital data by embedding company's logo or trademark.

Embedding company's logo or trademark, signature, author's name, etc, in copyright protection, authentication and integrity of digital data is conventional. However, the prior art of record fails to teach inputting a set of unlabeled digital data and a set of digital watermark data; formatting the unlabeled digital data into a format suitable for orthogonal transformation;

Art Unit: 2621

performing an orthogonal transformation on the formatted unlabeled data to produce a set of unlabeled data transform coefficients; formatting the digital watermark data into a format suitable for orthogonal transformation; performing an orthogonal transformation on the formatted watermark data to produce a set of unlabeled data transform coefficients; for each watermark data transform coefficient, allocating an unlabeled data transform coefficient to be replaced and replacing the respective unlabeled data transform coefficients to produce labeled set of data transform coefficients; storing the locations into which watermark data transform coefficients were encoded in the set of labeled data transform coefficients to generate a unique key for future decoding of the watermark data; performing an inverse orthogonal transformation on the labeled data transform coefficients to convert them into a set of labeled digital data having a form resembling the original unlabeled digital data. These elements in combination with all of the other elements of the claims are not taught or fairly suggested in the prior art of record. The dependent claims 66-100 are allowed for the same reasons.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

8. Claims 104-116, 122, and 124-125 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Art Unit: 2621

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

USPN 5,859,920 – Method for embedding digital information in an image

Zhao, et al., "Embedding Robust Labels into Image for Copyright Protection," Proc. Of the Int. Congress on IP Rights for Specialized Information, Knowledge and New Technologies, Vienna, August 1995, pp. 1-10

Ohnishi, et al., "Embedding a seal into a Picture under Orthogonal Wavelet Transform," IEEE, 1996, pp. 514-521

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shefali D Patel whose telephone number is 703-306-4182. The examiner can normally be reached on M-F 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo H Boudreau can be reached on 703-305-4706. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-0377.


DANIEL MARIAM
PRIMARY EXAMINER

January 6, 2004

Shefali D Patel
Examiner
Art Unit 2621